

*First Meeting of the Grid
Modernization Workgroup
(Grid Mod) of the Governor's Energy
Advisory Council (GEAC)*

Steven Hegedus

07/17/23

Today's Agenda

1. Opening remarks and introduction
2. Discussion of member priorities
3. Proposed matrix for working group deliberations
4. Discussion of information and analysis needs
5. Next Grid Mod meetings
6. Public Comments

Roles and Responsibilities: GEAC

The Governor's Energy Advisory Council shall be assigned the following responsibilities:

Providing recommendations to the State Energy Office on updates to the Delaware Energy Plan and Climate Action Plan every 5 years from date of enactment. The updating process shall include a process for public input and measures for progress in attaining goals identified in the plans.

Monitoring federal, state and regional energy issues, identifying the impacts on Delaware and recommending actions and policies to the Governor and General Assembly in response to identified issues.

Other duties as referred by the Governor.

Grid Modernization Workgroup

(Grid Mod)

Topics will include, but are not limited to:

- Transmission and distribution systems
- Resiliency
- Reliability
- Other topics raised by members

Workgroup Guidelines

All working groups are asked to consider the following:

- Climate change impact
- Public health and safety
- Workforce development
- Business opportunities
- Ratepayer impact
- Innovative technologies

GEAC Parameters and Process

Provide succinct list of recommendations to DNREC by January 2024 for the State 5 Year Energy Plan

Prioritize into short-term and long-term recommendations

- ❑ Can't do it all in the first year

Can be specific “State should install new battery technology in state buildings for demand charge reduction pilot projects” or open-ended “State needs to study how to achieve X using Y”

Subject matter experts can be invited to committee meetings

Every recommendation has to survive two votes

- ❑ First subcommittee then GEAC
- ❑ Simple majority vote with a quorum

Grid Comm members

GEAC Member	Designee
Dr. Steve Hegedus, innovative energy technology	
Stephanie Hansen, Senator	
Ruth Price, DPA	Andrea Maucher
Lisa Oberdorf, DPL&L	George Owens, Rajul Mahmud
Dale Davis, solar energy	
Lori Murphy Lee, PJM	
Dallas Winslow, PSC	Matt Hartigan
Shawn Garvin, DNREC	Tom Noyes
Christophe Tulou, environmental interests	
Rob Book, DEC	Dave Shapley
Drew Slater, SEU	
Kimberly Schlichting, DEMEC	
Steve Steffel, Quanta Technology	
Evan Vaughan, MAREC Action	

Grid Mod Motivation and Urgency

Utility industry typically reports that its top two challenges are:

1) aging grid infrastructure and 2) integrating more renewable DER

DE RPS solar carve-out will nearly triple solar generation from 3.5% to 10% by 2035.

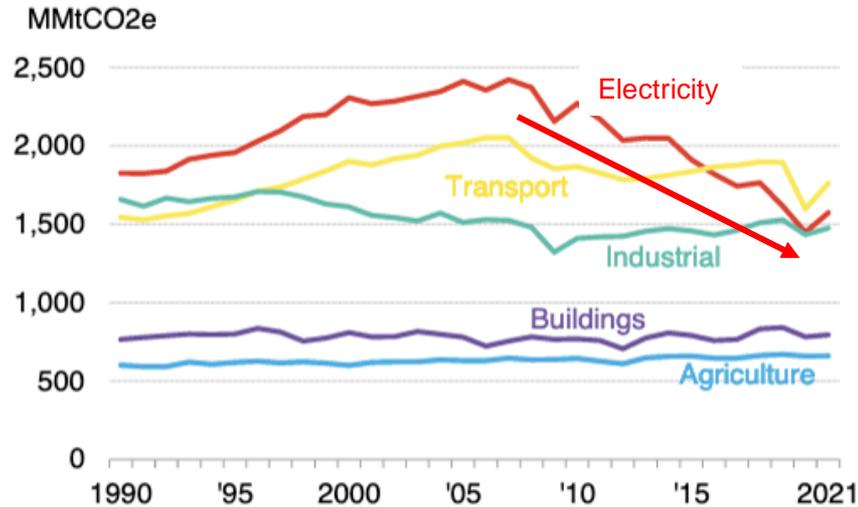
Inflation Reduction Act (IRA) will dramatically increase incentives for installing solar, EV chargers, and other clean energy investments. It extends the 30% solar tax credit to 2032, provides \$4K tax credit for EVs, and unlocks hundreds of millions in competitive grants to enhance clean energy technology and deployment. Also funds utilities to modernize grid resilience (battery, microgrid).

Federal Energy Regulatory Commission (FERC) Order 2222 requires the ISO (PJM) to accommodate aggregation of DERs so that they can participate in bigger transmission markets. DER aggregators will manage a large stable of small dispatchable DERs (e.g. solar+battery) so they can be compensated for providing various grid services by forming a 'virtual power plant' (VPP).

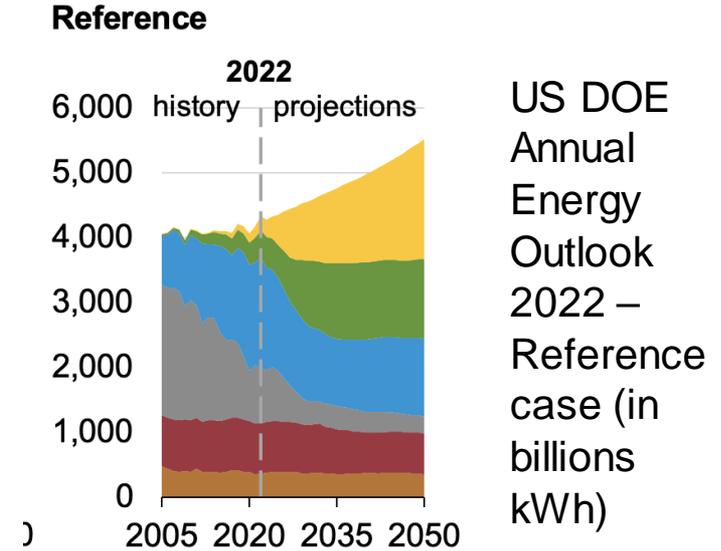
Decarbonizing Energy = Electricity

2022 US Electricity Generation:
Solar 5%, Hydro 6%, Wind 10%,
Nuclear 18%. Total 39% C free

Emissions by sector



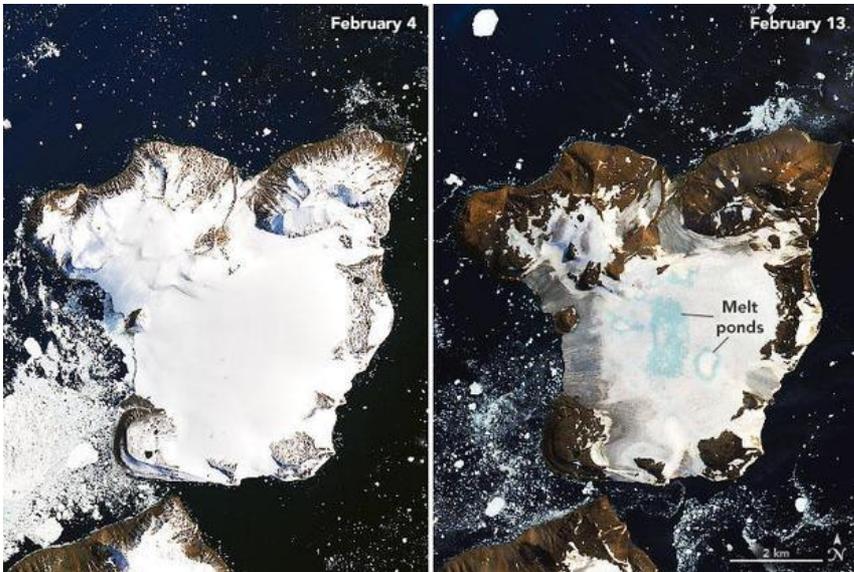
US-DOE: Electricity is the only sector with steady trend toward C reduction



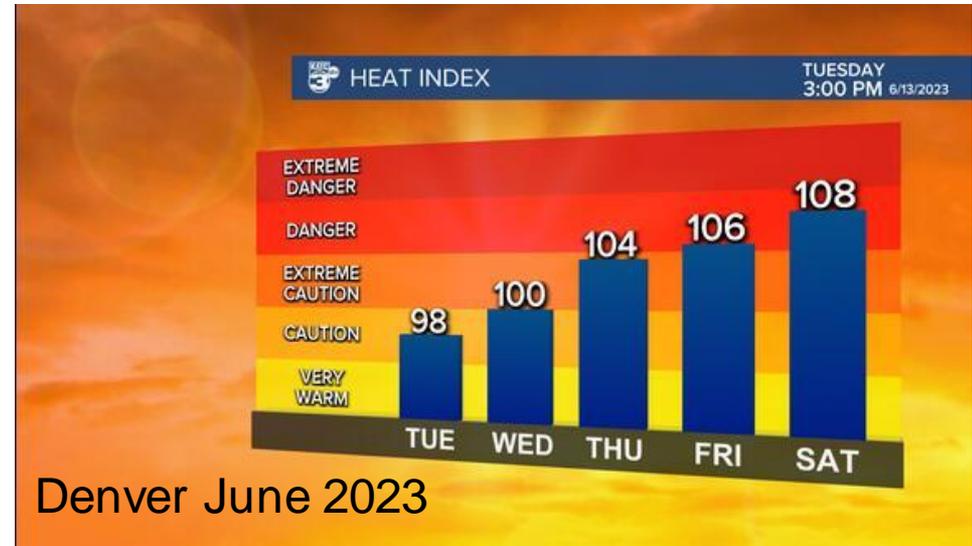
source	2022	2030	Incr
solar	205	910	340%
wind	440	1001	130%

And let's not forget our rapidly warming planet

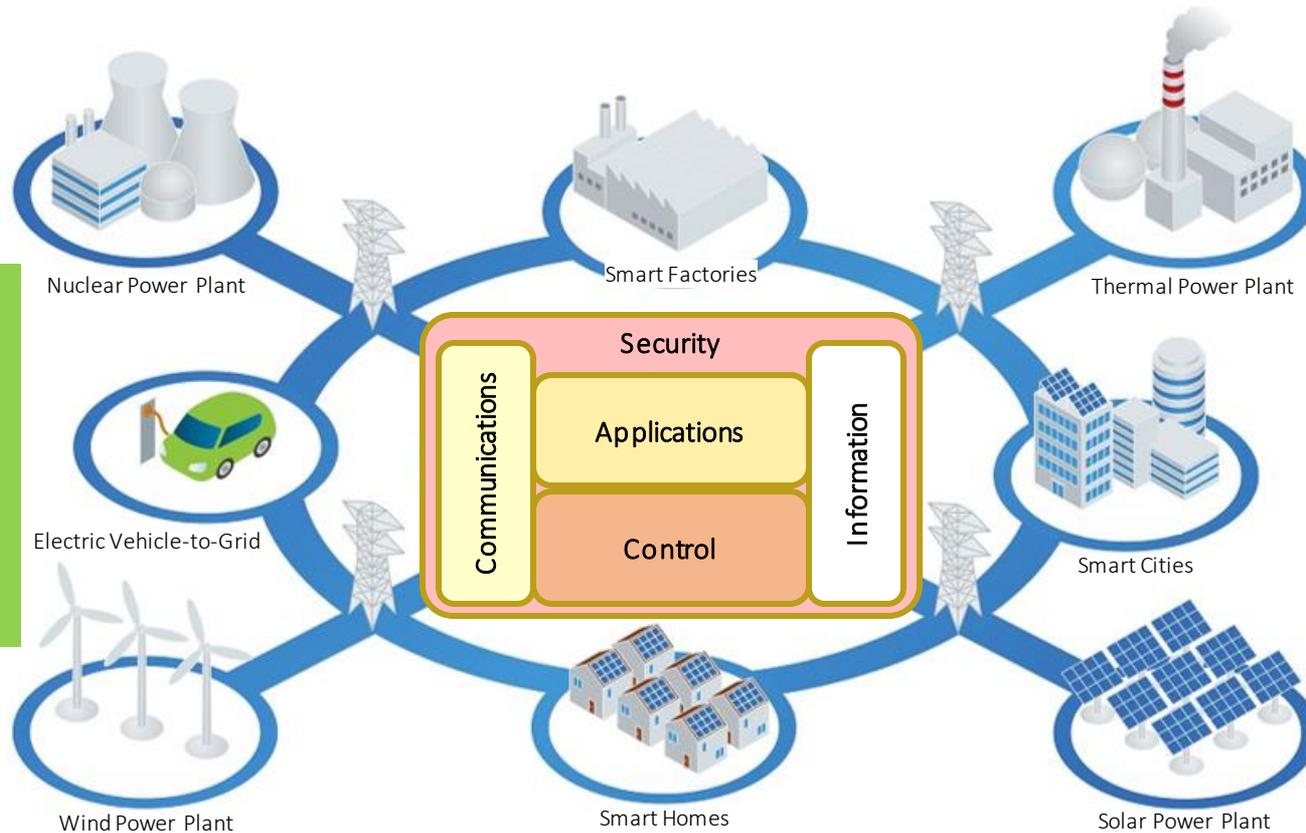
Antarctic glacier melting in 1 week



New Jersey April 2023
>5000 acres burned



Grid Mod Leading to Decentralized Smart Grid



Energy and data flow in all directions managed by central comm/control system

Also needed:
Finance
Regulation
Forecasting
Marketing

2. Grid Mod Committee Member Topics

Go around the zoom and the room to hear committee members discuss their 2-3 top Grid Mod goals, issues, topics, etc.

3. Proposed matrix for working group deliberations

Scott Blaier (DNREC)

4. Discussion of Information and Analysis

Scott Blaier (DNREC)

DNREC asked me to briefly summarize the Grid Modernization survey conducted over past year – following slides

Three General Topics for Survey

Asked to conduct a survey of Delaware's eleven utilities to provide a snap-shot of their readiness to

- ❑ meet statewide decarbonization goals at the distribution level
- ❑ to conduct an Integrated Distribution Plan (IDP)

DPL, DEC, DEMEC (8 municipal members plus Dover Electric)

21 questions covering 3 general areas

- General Grid and Service Modernization
- Solar PV and Storage
- Resilience and Reliability

Results synthesized and report written Jan-May 2023

Select highlights from Survey

All 3 utilities either have or will soon have ~99% customers with AMI

All 3 utilities have robust summer AC load management programs

All 3 utilities have considered their own battery storage but rejected due to cost. DPL has implemented 1st project this month in NJ.

Microgrids are key tool to integrate more renewables and increase resilience. DEMEC has MG in Smyrna with gas peaker. Issues: cost, regulatory complexity, ownership.

Overall lack of consideration of Non-Wires Alternatives (NWA) to meet increasing load

Centralized (utility) awareness and control of generation (solar) and loads (EV) behind the meter (BTM) will be essential (DERMS, etc). Both DPL and DEC are planning very innovative demonstration projects for PV or EV management. Funding from the US Department of Energy (DOE) and involve collaboration with organizations inside and outside of DE. If successful, these pilot projects would open up much of their circuits to new customer sited EV and PV to increase solar capacity while maintaining stable grid operation.

Extra slide explaining VPP

DER Management System (DERMS) enabling Virtual Power Plant (VPP)

